

Carbon dioxide + Methane as Greenhouse

Mark Scheme 1

Level	GCSE (9-1)
Subject	Combined Science: Trilogy - Chemistry
Exam Board	AQA
Topic	5.9 Chemistry of the Atmosphere
Sub-Topic	Carbon dioxide + Methane as Greenhouse
Difficulty Level	Bronze Level
Booklet	Mark Scheme 1

Time Allowed: 49 minutes

Score: /48

Percentage: /100

Grade Boundaries:

M1.(a) dissolved

in this order

1

carbonates

1

(b) Photosynthesis

1

(c) water

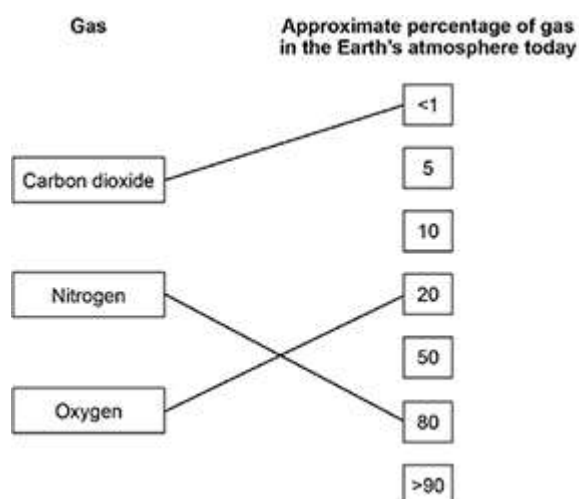
In this order

oxygen

both needed for the mark

1

(d)



Extra lines from Gas negate the mark

3

(e) increases global temperatures

1

- (f) use renewable energy supplies 1
- (g) correct reason, eg:
- renewable technology underdeveloped
 - disagreement between countries
- 1 [10]

M2.(a) (i) a proton 1

(ii) nucleus 1

(iii) 12
order must be correct 1

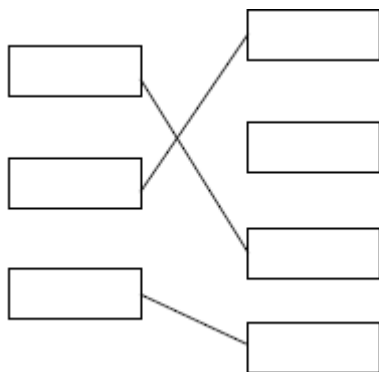
4 1

(b) (i) 5 / five (%) 1

(ii) Carbon dioxide > global warming 1

Sulfur dioxide > acid rain 1

Water > no pollution



1

[8]

M3.(a) (i) 42 000

correct answer gains **2** marks with or without working allow
42 kJ

if answer incorrect : correct substitution $500 \times 4.2 \times 20$ gains
1 mark

2

(ii) any **two** from:

- eye protection
- lab coat
- heat-proof mat
- (heat-proof) gloves
- (long) hair tied back
- stand up
- secure the beaker

2

(iii) Stir the water before measuring the temperature.

1

Place a lid on the beaker.

1

(b) the products → S

1

the activation energy → Q

1

the energy released by the reaction → P

1

(c) carbon dioxide produced

it = propane

allow converse arguments

allow greenhouse gas / global warming / atmospheric pollution

(crude oil / propane) non-renewable

1

allow crude oil running out

1

[11]

M4. (a) (i) bar drawn between 84 and 86

1

(ii) sulfur dioxide linked to acid rain

1

carbon particles linked to global dimming

1

(b) (i) any **one** from:

- plants / trees absorb (carbon dioxide)

- coal 'locks up' (carbon dioxide)

1

- (ii) it increases the amount (of CO₂)

1

because carbon in coal (forms carbon dioxide)

accept because carbon / coal burns / reacts with oxygen (to produce CO₂)

1

[6]

- M5.** (a) crust

ignore Earth's

1

core

ignore inner and/or outer

1

- (b) bar chart

1

all heights are correct

accept correctly plotted points

1

all labels are correct for nitrogen, oxygen and other / argon

1

- (c) (i) decomposed

1

(ii) global warming

1

[7]

M6. (a) sulfur dioxide / SO_2
allow sulfur oxide

1

(b) global dimming

1

(c) oxygen / O_2

1

(d) (oil is a) limited resource / finite / non-renewable
accept running out of oil **or** wood is sustainable
accept (burning oil) increases amount of carbon dioxide in
the atmosphere / global warming **or** releases locked up
carbon / global dimming / acid rain
accept the oil (may become) too expensive

1

(e) carbon dioxide produced (from burning wood)
ignore global warming

1

carbon dioxide used by plants / trees **or** for photosynthesis
if no other mark awarded
allow carbon emissions used by plants / trees **or** for
photosynthesis for 1 mark

1

[6]

